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THREE AMPUTATIONS OF THE THIGH—TWO IN THE UPPER THIRD, ONE AT THE MIDDLE.

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CASE I.—Lewis Hart, a negro, seventeen years old, of Yellow River, Santa Rosa County, Fla., was brought to me March 24, 1888, with the right knee and ankle disorganized by suppurative tuberculous disease of seven years' standing. All the structures concerned in these joints were involved; the knee was dislocated outward; pus was escaping by seven or eight fistulæ in the thigh and leg; the lower end of the femur was softened and breaking down. There was great emaciation, profound anemia, extreme debility, difficulty in deglutition, loud anemic cardiac murmurs, but no organic disease of vital organs.

I decided to amputate as soon as the patient could be built up sufficiently to stand the operation.

On March 28th, the patient, showing no signs of improvement, but rather the reverse, I concluded to operate at once. Captain M. C. Wyeth, U. S. A., Post-Surgeon at Fort Barrancas, willingly consented to help me, although he thought that the patient would die from the anesthetic, as his heart was acting badly. He administered the ether, preceding it by a small drink of whiskey, and the operation was quickly done, Apothecaries Purden and Waggener, U. S. N., and Nurse John Kelly assisting us. On account of the unhealthy state

of the soft parts, an irregular flap-operation, approaching the circular, was done, two fistulous openings being unavoidably included in the longer anterior flap. The femur at the point of section, at about its center, was hardly more than a circular shell of bone, with a large medullary cavity.

The patient emerged from the anesthesia with very little life in him, but was kept alive for a few days by frequent small quantities of liquid food, digitalis, and stimulants. After that he began to gain strength, and continued to do so, though very slowly. The vitality of the tissues was so low that it was impossible to get even an attempt at primary union of the flaps, and the stump had to be treated as an open wound. Whenever it was closed pain would come on and the temperature would rise. The flaps were kept as aseptic and in as good a position as possible, and at the end of about three months the patient went home with a good stump and in fair general health.

After reaching home he grew fat and hearty, and being unusually intelligent acquired a fair education, writing me occasionally very creditable letters.

Subsequently the same trouble that had destroyed the knee and ankle unfortunately reappeared in some of the lower costo-vertebral articulations, and the patient returned to me with an abscess to the right of the spine in the lower dorsal region. This was opened and cleaned out, and for about two years since there has been no advance of the trouble and the general health has been good.

CASE II.—Captain W. C. Gorgas, U. S. Army, Post-Surgeon at Fort Barrancas, who took a prominent part in the operation and after-treatment, has kindly given me a copy of his record of the following case:

"Thor Christiansen, a Swedish sailor, eighteen years old, in February, 1890, fell, in Pensacola Harbor, from the mast of his ship to the deck, striking on the head of

a belaying-pin, driving it through the upper third of his left thigh and breaking the femur at this point.

"He was taken to the Marine Hospital at Pensacola, and attempts were made to save the limb, but suppuration set in and the patient went from bad to worse.

"I first saw the patient July 13, 1890, in consultation with Dr. J. W. Ross, U. S. N., and Dr. Anderson. The lower fragment at this time protruded through the skin, and the upper one was about to come through, both communicating with a pus-cavity that held about a pint. The man suffered great pain, any movement causing him to cry out. The emaciation and debility were greater than I have ever seen in a person who recovered. Indeed, I thought it probable that he would not survive the night. I estimated at the time that he had about three square feet of bedsores, the largest, that over the sacrum, covering fully a square foot, and laying the bone bare. Every point of pressure was bare, elbows, scapulæ, ribs, iliac bones, etc., and the pressing bone was bare in many of these places. There was no albumin in the urine, and all other organs were healthy. I was inclined to think that the patient would die in the course of the next twenty-four hours; I was quite sure that he would not survive operation. This was the opinion of all who had seen him.

"Dr. Ross, having had a somewhat similar case before, urged immediate amputation, in which I supported him with many misgivings. Dr. Ross amputated at the point of fracture, making a circular skin-flap, and slitting up the flap to get out the dead bone. A short piece of femur was left *in situ*, the idea being to subject the man to as little shock as possible, and to disarticulate at the hip-joint a few days later, after he had somewhat recovered. Great care was given to asepsis during the operation. The patient suffered profoundly from shock for several hours, and it was only by steady care and stimulation that he survived. He began to

gain from the day after the operation, and we kept deferring the second operation till we saw that it was not needed. He was moved to the military hospital at Fort Barrancas on the 21st.

"Improvement was rapid and steady, and by September 22d he was walking about on crutches. He left the hospital in December, with all of the bedsores healed and the stump in good condition.

"What so impressed me in this case was the fact that a patient so weak and debilitated could recover from any operation. In future I shall not hesitate to operate on a patient, with otherwise healthy organs, on account of debility, unless he is actually *in articulo mortis*. After this case it seems to me that it can never be too late to operate on such a patient."

Having been called in consultation by the surgeon of the hospital, I saw Christiansen first on July 10th, three days before the operation and about five months after the reception of the injury. He was a mere shadow and was expected to die at any hour. The lower end of the upper and the upper end of the lower fragment were widely separated, with several pieces of dead bone and a large pus-cavity intervening. The surgeon, after having tried many ingenious contrivances for keeping the bones in juxtaposition, had abandoned all hope of union, and was doing what he could to diminish suffering. As there was no other earthly hope, and as I had seen a very similar case saved by it, I advised immediate operation.

On July 12th the patient collapsed, and it was thought that the end had come. After he had reacted the surgeon telegraphed me to come up and amputate.

On the next morning, July 13th, Dr. Gorgas, Dr. Anderson, and I, assisted by our apothecaries and stewards, operated in the manner described.

Once during the operation and once immediately afterward life appeared about extinct, but with external

heat, stimulants hypodermatically and internally, and his wonderful vital tenacity, the patient survived. Apothecary (now Dr.) Richard Waggener staid by him until the next day, keeping him warm, nourishing him, and stimulating him *per os* and hypodermatically with whiskey, digitalis, and atropin. On the following morning Dr. Anderson told me that the patient would surely have died during the night but for Waggener's faithful and skilful care. As the attendants in the hospital were overworked with other patients, one of the navy or army attendants nursed Christiansen night and day for nearly a week, at the end of which time he had gained a little strength and was comparatively comfortable. On July 21st Dr. Gorgas, in great kindness, sent an ambulance and took the patient to the army hospital, where there was a full corps of attendants and few patients. There he was nursed like a child back to health, the great difficulties being to heal the bedsores and teach him how to walk, as the muscles had atrophied and apparently disappeared.

Finally, by December, being perfectly well and sound, he went back to his home in Wexio, Sweden.

Some months later he sent me a grateful letter, telling me that he was strong and robust, asking advice regarding an artificial leg, and sending his photograph, which showed him to be in perfect health.

In the following case the operation was not done by me. I am responsible for it, however, as but for my persistency it would not have been performed. It is reported here, because it conveys the same lesson, *nil desperandum*, as the two foregoing, and because of its striking resemblance to one of them. But for my experience with this case I should not have advocated or done the operation in Case II.

CASE III.—George William Ritchie, an ordinary seaman-apprentice on the U. S. Flagship *Hartford* about nineteen years old, on October 24, 1884, fell from

aloft on the *Hartford* in the bay of Callao, Peru, striking the ratlines and landing on the grating of the Hotchkiss gun, sustaining a compound, comminuted fracture of the upper third of the left femur, a fragment of bone projecting through the external wound.

On October 28th he was transferred ashore to the Guadalupe Hospital, Callao, where he passed out of the hands of the U. S. Surgeons.

The *Hartford* sailed away not long afterward, and I being attached to the U. S. S. *Onward*, at Callao, was requested to look out for the boy. He seemed never to have recovered fully from the shock of the injury, and had gone along pretty rapidly from bad to worse. At the end of about three weeks he was in very much the same condition as was the boy Christiansen (whose case has been described) when first seen by me, except that he was less emaciated and the bedsores were not so bad. The wound was bathed in pus, and the broken ends of the upper and lower fragments movable and overlapping for several inches, with two or three pieces of broken bone hanging to them. There was high fever (apparently hectic), profound prostration, delirium, and intense suffering. A skilful diagnostician who examined him carefully, thought that pyemia had set in, involving especially the lungs.

As death was certain and imminent without it, I endeavored to get the visiting surgeon of the hospital, Dr. Távara, to remove the limb. He declined on the ground that it would be entirely useless, that the boy would die whether he amputated or not, and that it would injure his private practice to have the patient die during or immediately after operating upon him.

At about this time the U. S. Steamship *Wachusett* came to Callao, with Surgeons W. H. Jones and W. R. DuBose, U. S. Navy, on board. These gentlemen went with me to see Ritchie, and agreed that death was inevitable without amputation. I also got Dr. Campion,

a very able English surgeon of the Pacific Navigation Company, in charge of their hospital at Callao, to see Ritchie, and he shared the same opinion. I then brought about a meeting of these surgeons, Drs. Jones, DuBose, Campion, and Távara, for a careful consideration of the case. Dr. Campion thought that amputation could do no harm and would greatly diminish the patient's suffering. Dr. Jones had slight hope that it might save the patient's life, and remarked that anyhow we might just as well kill him as to let him die by inches. Dr. DuBose thought that the only shadow of a chance for the patient's life lay in amputation. Dr. Távara considered that amputation would shorten the patient's life, that he did not like to operate in such hopeless cases, and that it would injure his reputation as a surgeon for Ritchie to die during or as the result of the operation. I said that the patient was a red-headed Scotch lad, with lots of vitality, and that if we would rid him of that thigh, with its terrible pain and discharge, I believed he would get well. I proposed that if Dr. Távara would go ahead and cut the limb off we would all assist him in the operation and take the whole responsibility. The other surgeons supported me in this, and Dr. Távara yielded.

On November 9th, the day following our conference, I believe, we met at the Guadalupe Hospital, and assisted Dr. Távara in amputating in the upper third of the left thigh.

The very next day the patient was decidedly improved in every way, and from that time went straight along to recovery.

During the following year I met Ritchie in New York City, getting fitted with an artificial limb. He was in fine health, and seemed almost as active on his one leg and crutch as the average man is on two legs.

In these three cases, all of the kind that have entered into my experience during the past ten years, three lives

were saved, but had only one been saved the amputations, with all their trouble, responsibility, etc., would have been amply justified. They are reported with the hope that the results may cause other surgeons to operate under similar circumstances when they would not otherwise do so. Obviously the lesson they convey is of much wider application than to amputations, and covers all cases in which without operation death is certain, and when with it the slightest chance for life is afforded. It is not an agreeable thing to have a patient die upon the table, or to feel that an operation has been the immediate cause of death, and that the surgeon's reputation may temporarily suffer thereby, but it is the surgeon's duty to put himself in the patient's place, and do unto him as he would wish to be done by. Human life is too sacred for any chance, however small, of saving it to be thrown away. In such cases, even when the patient does not survive, he is almost certainly delivered from much suffering.

I remember seeing in Bellevue Hospital, New York, about twenty years ago, a woman who for some injury of the leg had been urged to submit to amputation above the knee. She refused operation until she saw that she was about to die, and then begged with tears to have it done. Then the surgeons would not amputate, believing that it was too late, and within a day or two the woman died. I have often thought since that had they operated promptly as soon as she gave her consent her life might possibly have been saved.

In the foregoing cases no unusual operative skill was employed, nothing more than any well-equipped surgeon of moderate experience might command.

A study of these three cases has strengthened an opinion long held by me, that the danger of shock in modern operative surgery is overestimated. May not much of the dread of it have come down to us from the pre-anesthesia days when there was so much suffering

from pain and fear? May not much that we attribute nowadays to shock be due to loss of blood or to too energetic administration of anesthetics? I can testify from personal subjective experience that the shock of being knocked down by an anesthetic, as it is frequently administered, is very great indeed, extremely like that of a heavy blow on the top of the head.

Our plan here (the Government Reservation, near Pensacola, Fla.) is in the great majority of cases, both obstetric and surgical, to begin with chloroform given in small quantities very gradually until the patient sinks into an apparently natural sleep, and then the sensibility of the respiratory mucous membrane being obtunded, substituting the more irritating but less dangerous ether, to maintain the anesthesia with the latter. This method costs a little more time and trouble, but we are satisfied that it pays well. In our work here we have given chloroform and ether to several hundred patients without any approach to an accident from the anesthetic. As Dr. Gorgas expresses it, "We chloroform the patients in order to give them ether."